

TWO-CHANNEL GETTERING
OF RECOMBINATION-ACTIVE
IMPURITY IN POLYCRYSTALLINE
SOLAR SILICON

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S u m m a r y

The features of the recombination-active impurity gettering in polycrystalline silicon have been studied. The research method included the formation of a porous silicon layer 0.5–2 μm in thickness on the backside of a silicon wafer, the deposition of aluminum layer 0.5–1 μm in thickness, and the thermal annealing at 700–950 $^{\circ}\text{C}$ during 30–60 min. The corresponding gettering model has been proposed, which includes the diffusion of iron atoms by means of two most probable independent channels: in the wafer bulk and along the grain boundaries. By comparing the theoretical results and experimental data, we established that 30% of gettered impurity atoms diffuse with a high rate along the grain boundaries, and 70% of them in the grain bulk.